

CLAIMS

1. A process of splitting bitumen into a heavy and light fraction and emulsifying the heavy fraction for use as a fuel comprising:
 - a) splitting bitumen into a heavy and a light fraction from a process chosen from the group comprising a two-stage flash separation process, a gas plant diluent separation process and any combination thereof; and,
 - b) emulsifying the heavier fraction with water to form a burnable fuel.
2. A process as in claim 1 wherein the cut point of the heavy and light fraction is 490°C to 510°C.
3. A process as in claim 1 wherein the cut point of the heavy fraction and light fraction is 500°C.
4. A process as in claim 1 wherein step a) is a gas plant diluent separation process and the ratio of gas plant diluent to bitumen is 1:1 to 10:1.
5. A process as in claim 4 wherein the ratio of gas plant diluent to bitumen is 10:1.
6. A process as in claim 4 wherein the gas plant diluent has a composition comprising 61-81 LV% paraffins, 15-25 LV% naphthenes and 5-13 LV% aromatics.
7. A process as in claim 6 wherein the gas plant diluent has a composition comprising 71 LV% paraffins, 20 LV% naphthenes and 9 LV% aromatics.

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8. A process as in claim 4 wherein the gas plant diluent separation process comprising:

- a) mixing gas plant diluent and bitumen in a ratio of 10:1 to 1:1 (diluent:bitumen) to create a bitumen/diluent mixture;
- b) allowing the bitumen/diluent mixture to settle for at least one and no more than twenty four hours;
- c) separating a bottom resid portion and a deasphalted light portion; and,
- d) flashing remaining diluent from the bottom resid portion.

9. A process as in claim 8 wherein the bitumen:diluent ratio is 1:10 to 1:5.

10. A process as in claim 1 wherein the ratio of water to heavier fraction in step b) is 10:90 to 50:50 by weight.

11. A process as in claim 10 wherein the ratio of water to heavier fraction in step b) is 30:70 by weight.

12. A process as in any one of claims 1-11 further comprising the step of burning the fuel in a combustion chamber to produce high pressure steam for steam-based bitumen recovery to recover bitumen as a produced water/bitumen mixture from an underground reservoir.

13. A process as in any one of claims 1 - 12 wherein emulsifying the heavier fraction comprising:

- a) mixing water and surfactant to form a water/surfactant mixture;
- b) adding the water/surfactant mixture to a heated heavier fraction to form a heated emulsion; and,

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c) adding cool water to the heated emulsion to form a cooled emulsion having a temperature below the boiling point of water at ambient pressure.

14. A process as in claim 13 wherein the average particle size of the emulsion is less than 10 microns.

15. A process as in claim 13 wherein the average particle size of the emulsion is at least 2 and not more than 5 microns.

16. A process as in claim 13 wherein the total amount of water (by weight) added in steps a) and c) are equal.

17. An integrated process of steam-based bitumen recovery and steam generation comprising:

a) splitting bitumen into a heavy fraction and a light fraction in process chosen from the group comprising a two-stage flash separation process, a diluent separation process, and any combination thereof;

b) emulsifying the heavy fraction with water and an emulsifier to form a burnable fuel;

c) burning the fuel in a combustion chamber to produce high pressure steam for steam-based bitumen recovery to recover bitumen as a produced water/bitumen mixture from an underground reservoir;

d) separating the produced water/bitumen mixture in a bitumen/water separator to produce bitumen, a portion of which is used for step a) and produced water; and,

e) subjecting the produced water to a water treatment process to remove contaminants and to produce a treated water suitable for steam generation in step c).